



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,662	04/27/2001	Eva Raschke	8325-0012	9004

20855 7590 12/31/2007
ROBINS & PASTERNAK
1731 EMBARCADERO ROAD
SUITE 230
PALO ALTO, CA 94303

EXAMINER

KELLY, ROBERT M

ART UNIT	PAPER NUMBER
----------	--------------

1633

MAIL DATE	DELIVERY MODE
-----------	---------------

12/31/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/844,662

Applicant(s)

RASCHKE ET AL.

Examiner

Robert M. Kelly

Art Unit

1633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 57,63,64,66-71 and 87-90 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 57,63,64,66-71 and 87-90 is/are rejected.
- 7) ☒ Claim(s) 57,63,64,66-71 and 87-90 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1633

DETAILED ACTION

Notice: Examiner Reassignment

This Application has been **reassigned to Examiner Robert M. Kelly**, of TC1600, Art Unit 1633. All future correspondence should properly refer to the new Examiner, etc. Information concerning the Examiner and SPE is provided in the final paragraphs of this Official Action.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/26/07 has been entered.

Claims 57 and 91 have been amended with the present response.

Claims 57, 63, 64, 66, 68-71 and 87-102 are presently pending.

Note: specification citations

The Examiner will refer to Applicant's specification in terms of the paragraph number of the Application Publication of this Application: Publication No. 2002/0064802, rather than page and line number of the present specification, whenever possible (i.e., the amendments that do not matter to the argument/rejection/objections proffered).

Art Unit: 1633

Election/Restrictions

Claims 91-102 remain withdrawn as being drawn to non-elected inventions, per the restriction requirement of 4/7/04, response to restriction requirement of 5/10/04, and Official Action of 11/14/06, as well as the prosecution history.

Hence, Claims 57, 63, 64, 66, 68-71 and 87-90 are presently considered.

Note: Withdrawal of Rejections of 5/30/07

At the outset, **all prior rejections held in the previous Official Action of 5/30/07 are hereby withdrawn**, in favor of the rejections below, which may or may not be the same as the prior rejections. Specifically, the Examiner disagrees with the prior Examiner's analysis of the scope of "exogenous molecule", and also finds the various art rejections to be so unclear that the present Examiner does not understand the rejections, nor the overall strategy.

Claim Interpretation

As many of the limitations of Claim 57 appear to be without clear limitation as to what they are meant to limit, the scope of Claim 57 is provided, followed by a quick explanation.

Claim 57 is understood to encompass the following embodiments:

(i) A non-naturally occurring molecule (having only a synthetic structure), bound to a DNA which, in the context of its natural DNA or plasmid in which it existed in a cell under some specific conditions and time of development, would have also contained chromatin structural elements; and

(ii) A cell comprising a non-naturally occurring molecule (having only synthetic structure), bound to a DNA which comprises chromatin structural elements.

With regard to the prior Examiner's analysis, the prior Examiner determined that the exogenous molecule may be the same as that occurring in the cell, but is one that is introduced into the cell. The present Examiner disagrees. It appears that the prior Examiner was relying on an overly-tight analysis of a sentence for a definition, pulled from paragraph 0049 of the Application's Publication 2002/0064802. The present Examiner understands such to not be a strict definition by literal interpretation of the words, but, given the context of paragraph 0067, it is clear that the molecule is one that is not normally present in the cell, and is strictly dependent on having any distinct chemical structure from that of the molecule(s) normally present in such cell (e.g., paragraph 0068). Therefore, the present Examiner believes that the prior Examiner's reliance on such sentence as a "definition" is not what the Artisan would understand to be a definition, and actually conveys that the molecule is one that does not normally exist in the cell, but has a distinct structure in any way. Hence, it is clear that the strict definition of paragraph 0049 is not what is being conveyed to the Artisan, but only that when the term "exogenous" is applied with respect a cell type, it must not normally be present in the cell.

Still further, the new limitation, being drawn to non-naturally occurring, is interpreted to mean only synthetic molecules, which do not exist in nature. As such, all of the molecules presently claimed are exogenous to the cell, as they do not exist in nature.

With regard to the target site, the target site is understood to be the same as the binding site (paragraph 0045), and hence, it appears to be non-limitation.

With regard to the claimed “region” which is “sensitive to a probe of chromatin structure”, such limitation in the broad claim is considered non-limiting and therefore the specific probes of the dependent claims are non-limiting. As all chromatin is differentially sensitive to any probe of chromatin structure, by indicating the presence of absence of such probed structure, all chromatin structure is encompassed. Moreover, being within a “region” is ambiguous, encompassing any location relative to a chromatin structure. Hence, any DNA binding site which is connected to a region of chromatin would be encompassed.

Lastly, the difference between (i) and (ii) above, beyond the requirement of (ii) to encompass a cell, is that (i) is not required to have any chromatin structure, as it is out of the cellular context. Such is because (i) is outside the cell and simply requires the binding site, which is present in a region of cellular chromatin in the specific cell, while (ii), being the cell, would necessarily have such structure of chromatin.

Claim Objections

Claim 57 is objected to for recitation of “the binding site comprises a target site”. Given that the target site is the binding site (paragraph 0045 of 2002/0064802), this limitation simply leads to confusion, and is required to be removed.

Claim 57 recites “is in a region of cellular chromatin that is sensitive to a probe of chromatin structure”. Because all cellular chromatin is sensitive to any specific probe of chromatin structure, this limitation simply leads to confusion on the part of the Artisan and is required to be removed.

Art Unit: 1633

Claims 63, 64, 66-71, and 87-90 are objected to for depending from an objected to base claim.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-44 of U.S. Patent No. 7,235,354. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent is drawn to a method of regulating gene expression and associations with phenotypes, but does do so in all of the same species of the instant claims. The specification is drawn, at its core to the ZFPs, which includes synthetic ZFPs. Hence, in the process of performing the method, the ZFPs would necessarily bind such genomic DNA, which is in regions with chromatin structure. Therefore, the complexes and cells would be made.

Art Unit: 1633

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of U.S. Patent No. 7,220,719. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent is drawn to a method of modulating endogenous cellular gene expression, in a cell, but does so in all of the same species of the instant claims. The specification is drawn, at its core to the ZFPs, which includes synthetic ZFPs. Hence, in the process of performing the method, the ZFPs would necessarily bind such genomic DNA, which is in regions with chromatin structure. Therefore, the complexes and cells would be made.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 21-30 of U.S. Patent No. 7,217,509. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent is drawn to methods of isolating polynucleotides through probing cellular chromatin with various chemicals and enzymes, which chemicals are taught in the specification to include fully synthetic chemicals that do not exist in nature, and which enzymes include synthetic enzymes. Further the specification teaches the various embodiments of species. Hence, the complex in the cell is obvious, as it would form during the method of isolating the collection of polynucleotides in the claims of the patent. Therefore, the complexes and cells would be made.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 7,177,766. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent is drawn to computer methods of designing artificial zinc

fingers. However the specification teaches such is meant to bind and activate/repress transcription of endogenous genes in cells common with each claimed genera. Hence, the whole purpose of the patent's claims is to design non-naturally occurring DNA binding sequences, to bind cellular chromatin, which may be done in vivo or in vitro. Hence, the claims are obvious.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 7,163,824. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent's claims are drawn to cells comprising synthetic zinc finger proteins. However, the specification teaches that these cells bind to DNA in the genome. Therefore, the complexes and cells would be made.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 7,097,978. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to exposing cellular chromatin to a compound. However, the specification teaches the same cellular chromatins, and further teaches that the compound may be chimeric protein, including a ZFP. Therefore, the complexes and cells would be made.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 7,070,934. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn modulating the expression of a gene, comprising use of engineered zinc finger proteins, including non-naturally occurring

Art Unit: 1633

molecules. However, the specification teaches the same cellular chromatin. Hence, the complexes would obviously be made in the method. Therefore, the complexes and cells would be made.

Claims 57, 63, 64, 66, 68, 70, 71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 7,067,317. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to modulating angiogenesis by using zinc finger proteins to bind and increase VEGF expression, by binding specific sites. However, the specification teaches zinc finger proteins to be chimeric. Hence, the complexes would obviously be made in the method. Therefore, the complexes and cells would be made.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. 7,045,304. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn screening for compounds and their interaction with cellular targets, comprising use of engineered zinc finger proteins. However, the specification teaches the same cellular chromatin and cell types. Hence, the complexes would obviously be made in the method. Therefore, the complexes and cells would be made.

Claims 57, 63, 64, 66, 68, 70, 71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 7,026,462. Although the conflicting claims are not identical, they are not patentably distinct from each other because the polypeptides of the patent encode zinc finger proteins, which the specification teaches may be chimeric, and used to bind cellular DNA for increasing

Art Unit: 1633

angiogenesis. However, the specification teaches the same cellular chromatin and cell types. Hence, the complexes and cells would obviously be made in use of the polypeptide made by the polynucleotide.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-22 of U.S. Patent No. 7,013,219. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to modulating the expression of a gene in a cells, comprising the use of what the specification describes as non-naturally occurring zinc fingers. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-61 of U.S. Patent No. 7,001,678. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to altering cellular chromatin structure in a cell, comprising administration of fusion molecules. Such fusion molecules are necessarily artificial and must bind the DNA to alter its structure. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-22 of U.S. Patent No. 6,989,269. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to cells comprising gene-switch systems, which the specification teaches may be integrated or in plasmids, and further teaches

that the ZFP may be chimeric. Hence, the complexes and cells would obviously be made in using the cells to express the genes.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-85 of U.S. Patent No. 6,979,539. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to inhibiting or activating the expression of a gene in a cells, comprising the use of what the specification describes as non-naturally occurring zinc fingers. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-33 of U.S. Patent No. 6,933,113. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to modulating the expression of a gene in a cells, comprising the use of what the specification describes as non-naturally occurring zinc fingers. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-32 of U.S. Patent No. 6,919,204. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to compartmentalizing cellular chromatin regions of interest, comprising the use of non-naturally occurring proteins. Hence, the complexes and cells would obviously be made in the method.

Art Unit: 1633

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-66 of U.S. Patent No. 6,824,978. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to modulating the expression of a cellular genes, comprising the use of what the specification and claims describe as what can only non-naturally occurring zinc fingers. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 6,785,613. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn processes for making synthetic proteins, especially zinc finger proteins. However, the specification teaches using this method to make the proteins, which can then be used to bind cellular chromatin, in the various species. Hence, the complexes and cells would obviously be made in the use of the method's obtained proteins.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-30 of U.S. Patent No. 6,780,590. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to identifying genes in cells, comprising the use of what the specification describes as non-naturally occurring zinc fingers. Hence, the complexes and cells would obviously be made in the method.

Art Unit: 1633

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-53 of U.S. Patent No. 6,777,185. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to establishing associations of genes and a phenotype, comprising the use of what the specification describes as non-naturally occurring zinc fingers. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-22 of U.S. Patent No. 6,689,558. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to screening for interactions between a compound and molecular targets, comprising the use of what the specification describes as non-naturally occurring zinc fingers for binding cellular chromatin. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,610,489. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to predicting response to drugs, comprising the exposing cellular chromatin to drugs, which in the specification are described to include chimeric and chemical probes which are completely artificial. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-32 of U.S. Patent No.

Art Unit: 1633

6,607,882. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to activating expression of developmentally silenced genes in cells, comprising the use of what the specification describes as non-naturally occurring zinc fingers. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,610,489. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to predicting response to drugs, comprising the exposing cellular chromatin to drugs, which in the specification are described to include chimeric and chemical probes which are completely artificial. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-32 of U.S. Patent No. 6,607,882. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to activating expression of developmentally silenced genes in cells, using artificial proteins which in the specification are described to include chimeric proteins. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,599,692. Although the conflicting claims are not identical, they are not patentably distinct

Art Unit: 1633

from each other because the methods of the patent are drawn to establishing associations of genes in phenotypes, using zinc fingers which in the specification are described to include artificial zinc fingers. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,534,261. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to inhibiting and activating transcription of endogenous cellular genes, comprising the exposing such genes in the cell to zinc finger proteins, which in the specification are described to include artificial zinc fingers. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-33 of U.S. Patent No. 6,511,808. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to designing artificial regulatory molecules of genes, which the specification include artificial zinc fingers, and other proteins, which bind to the DNA and cause transcription. Hence, the complexes and cells would obviously be made in the use of the obtained proteins.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-30 of U.S. Patent No. 6,503,717. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent are drawn to identifying genes associated with

Art Unit: 1633

a phenotype, using exposure of cells to artificial zinc finger proteins. Hence, the complexes and cells would obviously be made in the method.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 6,45,242. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods/programs/systems of the patent are drawn selecting a target site within a target sequence for binding a zinc finger, which in the specification are described to include artificial zinc fingers, which are used to bind cellular chromatin subsequent to making. Hence, the complexes and cells would obviously be made subsequent to the methods/programs/systems of the patent.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Applicant is advised that should claim 57 be found allowable, claims 87-90 will be objected to under 37 CFR 1.75 as being substantial duplicates thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing,

Art Unit: 1633

despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Specifically, as is discussed above, all chromatin is sensitive to all probes of chromatin structure, and hence, the limitation of the probe is not considered to limit Claim 57. Moreover, claiming specific probes and generas of probes simply does no more to limit Claim 57 than the original limitation within Claim 57. Hence, these claims, despite a slight difference in wording are substantial duplicates of Claim 57.

Claim Rejections - 35 USC § 101 – product of nature

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

It is noted for clarity, the Examiner does not reject these claims for encompassing products of nature, as the exogenous molecule is non-naturally occurring, and hence, is not a product of nature. Moreover, as explained above, the present Examiner disagrees with the previous Examiner's analysis of what "exogenous" encompasses, and hence, the rejection is not proffered on such basis either.

Claim Rejections - 35 USC § 112 – new matter

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 57, 63, 64, 66, 58-71, and 87-90 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement **for comprising new matter**. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The rejected claims specifically encompass a subset of exogenous molecules which are “non-naturally occurring” which may be specifically interpreted in absolute terms (i.e., limited to that subset of molecules which are fully synthetic).

Applicant provides no citation of support for such generically claimed embodiment in their arguments.

The original claims do not recite support such complexes, wherein the exogenous molecule is simply any molecule put into the cell (e.g., Claims 40-53).

The original specification teaches that the exogenous molecule may encompass any molecule introduced into the cell which does not normally exist in that cell at that specific cell's stage of development and conditions in which it exists (paragraph 0067 of 2002/0064802), and may even be any endogenous molecule, as long as its specific structure differs in any way from the endogenous molecule (e.g., paragraph 0068 of 2002/0064802), and may be any type of molecule (e.g., paragraph 0069 of 2002/0064802), including proteins, lipids, and nucleic acids which are modified in any way (e.g., paragraph 0071 of 2002/0064802). Still further, the only mention in the specification of non-naturally occurring is the use of non-naturally occurring amino acids in the context of an analog of a naturally occurring protein (e.g., paragraph 0071 of 2002/0064802).

Still further, no specific definition is provided in the specification as to what is encompassed by a “non-naturally occurring exogenous molecule”. And, given further, that the confluence of the specification at best provides support for any molecule that does not normally exist, at that time, in that specific cell’s stage of development, the Artisan would not have understood the invention to specifically encompass that genera of molecules which are fully synthetic as a separate genera.

While it is noted that a consideration of the Art is not required for a rejection under the restricted basis of new matter, the Art in general, given the disclosure of Applicant’s specification, fails to point specifically to that subset of molecules which are non-naturally occurring such that the Artisan would understand such was possessed; i.e., the Artisan would not understand Applicant to have specifically contemplated that subset of molecules which do not occur in nature at the time of invention. This is further supported by the lack of clarity rejection, above.

Hence, these claims are properly rejected for comprising new matter.

Claim Rejections - 35 USC § 102 – MacKay

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 57, 63, 64, 66, 68, 70, and 87-90 are rejected under 35 U.S.C. 102(b) as being anticipated by MacKay, et al. (1998) Journal of Biological Chemistry, 273(46): 30560-67.

Art Unit: 1633

The subject claims encompass DNAs which contain chromatin structure in an animal cell, further bound to a non-naturally occurring Zinc-finger containing protein, which Zinc-finger containing protein is produced in the cell by way of transfection with a nucleic acid encoding such.

MacKay teaches the introduction of nucleic acids encoding mutant GATA-1 proteins, which are Zinc finger containing proteins, into NIH3T3 cells (e.g., p. 30562, col. 1, paragraph 1), and provide binding to GATA sites upstream the beta-globin TATA box, which is present on another plasmid, to drive expression of a GH reporter gene (Id.). MacKay further reports that these mutant proteins provided different levels of expression (p. 30565, col. 2, last paragraph).

Hence, because the plasmid containing the GATA sites necessarily has chromatin structure, and such GATA sites are known to be areas with chromatin structure, the claims are anticipated.

Claim Rejections - 35 USC § 102 - Schwechheimer

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 57, 63, 64, 66, 69, and 87-90 are rejected under 35 U.S.C. 102(b) as being anticipated by Schwechheimer, et al. (1998) Plant Molecular Biology, 36: 195-204.

Schwechheimer teaches Samsun and Black Mexican Sweet plant cell suspension cultures (p. 196, col. 1, paragraph 3), which were transformed to comprise a plasmid containing GAL4

Art Unit: 1633

binding sites linked to a reporter gene and a plasmid containing an expressed Gal4/1xVP16 construct (e.g., p. 197, col. 1, last paragraph), which yielded increased expression of the reporter gene (e.g., FIGURE 1).

Hence, the non-naturally occurring Gal4/1xVP16 bound to the binding site in the other plasmid, which contains chromatin structure, otherwise it would not fit in the cells.

Hence, Schwechheimer anticipates the claims.

Claim Rejections - 35 USC § 102 - Knoke

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 57, 63, 64, 66, 68, 71, and 87-90 are rejected under 35 U.S.C. 102(b) as being anticipated by Knoke, et al. (1999) Human Genetics, 104: 257-61.

Knoke teaches HeLa cells transfected with plasmids encoding non-naturally occurring androgen receptors (which are zinc-finger containing proteins), as well as reporter plasmids with sites for binding (e.g., p. 258, paragraph bridging columns), which yielded various levels of expression (e.g., FIGURE 2 and p. 259, paragraph bridging columns). Hence, as the plasmids have chromatin structure, the reporter gene is in a region comprising such, and the levels of expression indicate binding.

Therefore, the claims are anticipated.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 57, 66, 70, and 87-90 are rejected under 35 U.S.C. 102(b) as being anticipated by Oliveira, et al. (1998) Chromosome Research, 6: 205-11.

Oliveira teaches fluorescence in situ hybridization of heterochromatin in fish cells (e.g., ABSTRACT; FIGURE 2). Such molecules used in FISH techniques are non-naturally occurring. Still further, the DNA that is bound appears to contain heterochromatin sites and euchromatin sites (e.g., p. 210), hence, the DNA can be assayed for chromatin structure with probes therefore.

Therefore, the claims are anticipated.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 57, 63, 64, and 87-90 are rejected under 35 U.S.C. 102(b) as being anticipated by Boyes, et al. (1998) Journal of Molecular Biology, 279: 529-44.

Boyes teaches complexes between a non-naturally occurring GATA-1 (a zinc finger containing protein) minimal DNA binding peptide (e.g., p. 532, col. 2, paragraph 1) to its

Art Unit: 1633

cognate site (Id.). The cognate site of the GATA-1 protein is in cells in a region with differential chromatin structures, depending on differentiation of the cell (e.g., p. 532, col. 1, last paragraph), which can be assayed by probes of chromatin structure.

As such, Boyes teaches the various aspects of the claims.

Response to Argument – anticipation, Boyes

Applicant's argument of 9/26/07 has been fully considered but is not found persuasive.

Applicant argues that the rejected claims are drawn only to cells comprising the complex (p. 6, paragraph 4).

Such is not persuasive. As explained above, the claims are interpreted to encompass *in vitro* complexes of DNA bound to a non-naturally occurring molecule, as well as cells comprising the complex.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 57, 63, 64, 66, 68-71 and 87-90 are rejected under 35 U.S.C. 102(e) as being anticipated by each of US Patent Nos.: 7,235,354; 7,220,719; 7,177,766; 7,163,824; 7,045,304; 7,013,219; 6,989,269; 6,979,539; 6,933,113; 6,824,978; 6,785,613; 6,780,590; 6,777,185; 6,689,558; 6,607,882; 6,599,692; 6,534,261; and 6,453,242.

Art Unit: 1633

The applied references have a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As shown in the double patent rejections above, each of these patents claim embodiments which make obvious the various claimed subject matter. Moreover, the specifications each teach essentially the same subject matter with regard to the artificial proteins and artificial chemicals which bind to the cellular chromatin in the cell and/or outside the cell. Hence, the claims are anticipated.

Conclusion

No claim is allowed.

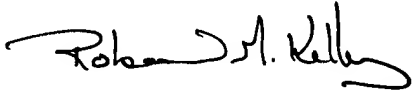
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert M. Kelly, Art Unit 1633, whose telephone number is (571) 272-0729. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Woitach can be reached on (571) 272-0739. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1633

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Robert M. Kelly, Ph.D.
Examiner, USPTO, AU 1633
Patents Hoteling Program
Mailbox 2C70, Remsen Building
(571) 272-0729

A handwritten signature in black ink, appearing to read "Robert M. Kelly", is written below the printed name and contact information.